United States Court of Appeals

for the Second Circuit

PETITION

IN THE UNITED STATES COURT OF APEALS
SECOND CIRCUIT

74-2455

Raphael J. Costanzo,

Plaintiff-Appellant

vs.

Appeal Docket No.
74-2455

Stanley Arron, Visa Therm Products,
Anna Arron, Anna Arron Executrix of
Estate of Max Arron,

Defendants-Appellees.

B

P/S

APPELLANT'S PETITION FOR REHEARING
AS TO THE ISSUE OF OBVIOUSNESS ONLY.

Before:
MULLIGAN AND GURFEIN, Circuit Judges
and CONNER, District Judge

Petition and Brief of
Appellant

Arthur T. Fattibene
Attorney for Plaintiff-Appellant
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Fairfield, Conn. 06430

5

TABLE OF CONTENTS

TABLE OF CASES

TABLE OF STATUTES

PLAINTIFF-APPELLANT'S
PETITION FOR REHEARING

Plaintiff-Appellant, pursuant to Rule 40 of the Federal Rules of Appellate Procedure, hereby petitions for rehearing with respect to the opinion rendered by the Court on August 26, 1975; as to but one issue; viz., to have this Court reconsider its finding that Claim 2 of the Costanzo U.S. Letters Patent No. 3,293,405 is invalid because of obviousness.

The reason for this petition is to bring to the Court's attention important evidence which the District Court and the Appeals Court have apparently overlooked, which it is submitted, should cause this Court to reconsider and reverse its finding of obviousness with respect to Claim 2 of the Costanzo patent in question.

As the Court noted, the obviousness or non-obviousness of the subject matter is to be determined by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claim at issue, and (3) to resolve the level of ordinary skill in the pertinent art. [Emphasis added.] Graham v. John Deer 383 U.S. 1 (1966).

The Court then stated:

> "We can conceive of no better way to determine whether an invention would have been obvious to persons of ordinary skill in the art at the time, than to see what such persons actually did or failed to do when they were confronted with the problem in

> the course of their work. If the evidence shows that a number of skilled technicians actually attempted, over a substantial period, to solve the specific problem which the invention overcame and failed to do so, notwithstanding the availability of all the necessary materials, it is difficult to see how a Court could conclude that the invention was 'obvious' to such persons at the time." [Emphasis added.]

Having correctly stated the premise, it is submitted that the Court reached the wrong conclusion because the Court either completely overlooked the evidence presented at trial with respect to the attempt made by Sonotone Battery Company to produce a small battery (less than six volts) electric sock; or else failed to appreciate the effect of the Sonotone Battery Company's evidence.

This fact becomes evident from the Court's opinion when the Court further stated:

> "However, no such evidence exists in this case. The record does not reflect that anyone specifically attempted to develop a sock which could be heated by a battery small enough to be carried on the sock itself; thereby obviating the annoyance of wires extending up the legs to a belt-supported battery."

It is submitted that this is not a correct finding because such evidence was in fact presented at trial by way of reading into evidence portions of Mr. Robert McCarthy's[1] deposition

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[1] Mr. Robert McCarthy was employed by Sonotone Battery Company and is the author of "Cordless Battery Power" which was an exhibit attached to Mr. McCarthy's deposition and is of record in this case. This article is part of the Joint Exhibit Appendix in this case at page 237, 238, 239, and 240; and is attached hereto as Appendix 1.

pertaining to Sonotone Battery's efforts in developing a small, less than six volt, battery heated sock.

Mr. McCarthy's testimony, put into evidence at trial, was to the effect that he and the engineers at Sonotone Battery Company attempted to develop a small battery heated sock. He testified that Sonotone was aware of the Northern Electric six volt lattern battery sock; and that they realized it (Northern Electric sock) "was too expensive" and that "we" (Sonotone) "had to have fewer cells." [Emphasis added.] (T.T. 497)[2]. (Same as Plaintiff-Appellant's Appendix page 205.) In the trial transcript, pages 493* and 511[3] (Plaintiff-Appellant's Appendix 206) (T.T. 511) Mr. McCarthy further testified that Sonotone, during this attempted development, was working with a 1 1/4 and 2 1/2 volt battery source. In the trial transcript page 493* (Plaintiff-Appellant's Appendix 206) , Mr. McCarthy stated that Sonotone did have a problem of getting down to the proper resistance and that Sonotone had perfected the sock except for the fine element. (T.T. 498)* Mr. McCarthy further testified that what Sonotone tried to do was to get down to the use of two F cells of nickel-codmiun batteries. (T.T. 499).** (Plaintiff-Appellant's Appendix 207). Referring to the "Cordless Battery Power" article[4] (Joint Appendix 237 - 240) and the table on page 240, a F cell battery has a diameter of 1.333

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2 T.T. as used herein refers to trial transcript followed by page number, and attached as Appendix 2.

3 Attached as Appensix 5 hereto.

4 Attached as Appendix 1 hereto.

*Attached as Appendix 3.

**Attached as Appendix 4.

inches and a height of 3.455 inches. The 1 1/2 volt alkaline battery utilized to power the Costanzo sock has a diameter of approximately 1.25 inches and a height of approximately 2.5 inches. It will thus be noted that the height and diameter of the F cell which Sonotone attempted to use was a small low voltage battery. Yet Sonotone, with vastly more resources in engineering skills, and knowledge, failed to perceive Costanzo's self-contained sock, even though Sonotone had recognized the problem with the Northern Electric sock.

Therefore, contrary to the Court's finding, there was evidence presented at trial that others skilled in the art tried to solve the problem Costanzo solved and they failed to do so. Mr. McCarthy testified, Sonotone abandoned the project.

The engineers who worked on the electric sock development at Sonotone must be deemed as coming with the meaning of "one ordinarily skilled in the art." They certainly had knowledge of the various types of batteries available and of the practical applications thereof.

The Court is also urged to note that inventors work in secret and that their failures are not published or made readily accessible to the public. It is only their successes that come to light. For this reason, the Court would be placing an impossible burden on an inventor if he was required in every suit to place in evidence the failures of others to which there is no reasonable

access. While in the present case Costanzo did place into evidence the failures of others (viz., Sonotone, Northern Electric, Kenico and Burnham) to make a successful low 1 1/2 volt self-contained battery heated sock, it is submitted that the burden of proof which the Court implied in the printed opinion on page 5782 goes beyond that contemplated by 35 USC 103 and as defined in Graham v. John Deer supra.

Ample evidence was introduced at trial by Appellant to show the scope and content of the prior art. Both the Trial Court and the Appeals Court made the finding that items of the prior art did not specifically disclose the invention.

Evidence was also presented to establish the differences between the prior art and the claim in issue. In this case, the Appeals Court found that the evidence did not substantiate the Trial Court's conclusion that the differences between Costanzo's invention and the prior art are "insubstantial." Since the Appeals Court noted that the Costanzo invention resulted in significant advantages in cost and convenience, it must be concluded that the Costanzo invention did serve to "promote the progress of the useful art." (Section 1, Article 8, Clause 8, United States Constitution), viz., the low voltage battery heated sock art.

Evidence was also presented to establish the level of those ordinarily skilled in the art in the pertinent area at the time. This level of skill it was determined consisted

of engineers, technicians, draftsman and modelmakers which are generally found in the research and development departments of such companies like Northern Electric, Sonotone Battery Co., Burnham, Kimco, etc., and who for more than ten (10) years failed to perceive Costanzo's invention, even though they were aware of the shortcomings of the six volt lattern battery sock.

While the Appeals Court noted that "the generalized efforts to improve the Northern Electric sock, in which the entire sole of the foot is heated, do not represent unsuccessful efforts to develop a sock with a self-contained power source;" such generalized efforts do evidence that those skilled in the art failed to perceive the concept and construction taught by Costanzo. If the Costanzo invention was so obvious as the Court concluded, why then did Northern Electric, Kimco, Burnham and Sonotone not manufacture and sell a 1 1/2 volt self-contained sock in view of the significant advantages in cost and convenience attributed to the Costanzo self-contained sock concept. Certainly the engineers in the research and development departments of these relatively large companies were not "rank outsiders" to the art. Where the evidence presented at trial clearly indicates that the Costanzo invention was not obvious to those skilled "inside the art;" it is inconceiveable how the Court can conclude that the Costanzo invention would be "obvious to anyone including even rank outsiders to the art."

While the Winchell patent recognizes the desirability of mounting a battery to an "overlying enclosure" for a sock,

it certainly cannot suggest, infer or anticipate Costanzo's invention since the reference is completely lacking in teaching what size battery is required; nor does it disclose the Costanzo self-contained concept. The evidence presented at trial clearly showed that there is considerable doubt as to the operability of the Winchell device and its capability of heating the entire foot and ankle by means of a 1 1/2 volt battery. Desirability of result without a teaching of operability can hardly justify a conclusion of obviousness of an operating device never before attained.

Reference is made to United States v. Adams 383 U.S. 39; wherein the Supreme Court held "an inoperative invention or one which fails to achieve its intended result does not negate novelty."

Furthermore, the Court is urged to note that the bulk of the "enclosure" of Winchell would be such, that even if operative, could not likely be worn with one's shoes on.

While both the Trial Court and the Appeals Court went to great pains to point out the dangers of hindsight evaluation, it nevertheless appears that both Courts indeed fell into the "trap" it had forewarned against. Knowing of a danger does not prevent one from being a victim thereof. In this regard, attention is directed to Diamond Rubber Co. v. Consolidated Tire Co. 220 U.S. 428, 435, 318 S.Ct.44, 55 L. Ed. 527 wherein in a frequently quoted opinion the Supreme Court stated:

> "Knowledge after the event is always easy, and problems once solved present no difficulties, indeed, may be represented as never having had any, and expert witnesses may be brought forward to show that the new thing which seemed to have eluded the search of the world was always ready at hand and easy to be seen by a merely skillful attention. But the law had other tests of the invention than subtle conjectures of what might have been seen and yet was not. It regards a change as evidence of novelty, the acceptance and utility of change as a further evidence, even as demonstration."

The Court is also urged to note that all of the art upon which the Court relied to conclude "obviousness" of the Costanzo invention was considered and rejected by the Patent Office.[5] Accordingly, for the Court to conclude "obviousness" is to totally disregard the expertise of the Patent Office. Where the art before the Court is the same as that considered by the Patent Office, the Court should be extremely reluctant to substitute its opinion for the expertise of the Patent Office. Ingersoll-Rand Co. v. Brunner & Lay Inc. 5 Cir. 1973 474 F^2 491 Cert. denied 414 U.S. 865 White v. Mar-Bel 185 USPQ 129 (Mar. 6, 1975). In the Court's discussion pertaining to the admissability of the Costanzo foreign patents, the Court noted that "The presumption of

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[5] The Winchell Patent 3,079,486 and Carrona U.S. Patent 3,084,241 were both cited by the Patent Office during the prosecution, and the six volt lattern battery was described in the preamble of the Costanzo application. Thus the Patent Office was aware of the prior art. Where an applicant describes the prior art in the specification, it creates a presumption that the Patent Office considered it in examining the application. Deknatel Inc. v. Bentley Sales 173 USPQ 129.

validity which the issuance of the U.S Patent confers, 35 USC 282 is a real one, citing Georgia-Pacific Corp. v. United States Plywood 258 F^2 124 (2 Cir.) Cert. denied 358 U.S. 884, and therefore, does not require augmentation of proof by issuance of corresponding foreign patents. Yet in reviewing the Court's reasoning and logic with regard to the issue of "obviousness," it all but disregards the "real presumption" of validity accorded an issued U.S. Patent; and which presumption is strengthened when the art relied upon to evidence obviousness was considered and rejected by the Patent Office. Georgia-Pacific v. U.S. Plywood, supra; Stevens v. Carl Schmid 73 F^2 54 (2 Cir) and Smokador Mfg. Co. v. Tubular Products Co. 31 F^2 255 (2 Cir.).

Clearly the evidence presented showed that Costanzo was the first to perceive a 1 1/2 volt self-contained heated sock, which once perceived and disclosed could be readily duplicated by the most rank unskilled person. Reference is made to In Re Pennington 241 F^2 750 wherein it was held that invention consists of either one or both of two steps; viz., (1) the conception of a general result sought, or (2) the actual means of achieving that result. The appreciation of step (1) namely the overall result sought to be achieved must be given great weight in considering the merits of an invention, even though the structure by which it has been achieved may seem to be closely related to known structures arranged to solve entirely different and non-related problems. Viewed in this light, Carrona U.S. Patent 3,084,241 can hardly be considered a proper reference to teach the invention in issue

in the absence of Costanzo's disclosure. Unless credit is given for concept, a true evaluation and appreciation of one's construction is rendered impossible; particularly when the invention once perceived and disclosed can be readily duplicated, as is true of the invention at bar.

The rule is well settled that the one who assails validity of the patent bears a heavy burden of persuasion. White v. Mar-Bel 185 USPQ 129; and that the presumption of validity can be overcome only by a clear and convincing proof. See 173 USPQ 136. Oliver United Filters Inc. v. Silver 206 F^2 658 Cert denied 74 S. Ct. 303.

In the present case, defendants presented virtually no evidence to rebutt the presumption of validity accorded an issued patent, nor did defendants make any showing that the Costanzo invention was obvious. In fact, Defendants did not seriously contest validity. Absence any real convincing proof and the total failure of the Defendants to sustain their burden of proof as to the invalidity of claim 2, it appears that the Court, sui sponti, concluded that claim 2 was invalid on the very same evidence which was considered and rejected by the Patent Office, and apparently in disregard to the abundant evidence presented by Costanzo to show that those skilled in the art failed to perceive or make the invention even though the problems were apparent and needs known. It is to be noted that Northern Electric had been producing the six volt lattern battery for more than ten (10) years before

Costanzo made his invention. If the Costanzo invention was so obvious, why then did others copy Northern Electric, e.g., Kimco and Burnham, and the Japanese for so many years before the Costanzo invention. The fact that others including Burnham and the Japanese immediately copied Costanzo's 1 1/2 volt self-contained concept only serves to add validity to Costanzo's invention. Shaw v. Whiting Co. 417 F^2 1097. (2 Cir) Where the existing devices after more than ten (10) years of use immediately yielded to the Costanzo invention upon the disclosure thereof, it must be concluded that Costanzo was the answer to a long felt want. Reiner v. Leon 285 F^2 501 (2 Cir.)

It is therefore submitted that claim 2 of the Costanzo patent more meets with all of the statutory tests of patentability, as well as all of the established judicial tests defined by the Courts of the Second Circuit as more fully set forth in Plaintiff-Appellant's main brief.

CONCLUSION

In view of the evidence which was apparently initially overlooked by the Court and for the reasons herein stated, and authorities cited in support thereof, it is respectfully requested that the Court review its finding of obviousness as to Claim 2 of the Costanzo patent and that said finding be reversed.

Respectfully submitted,

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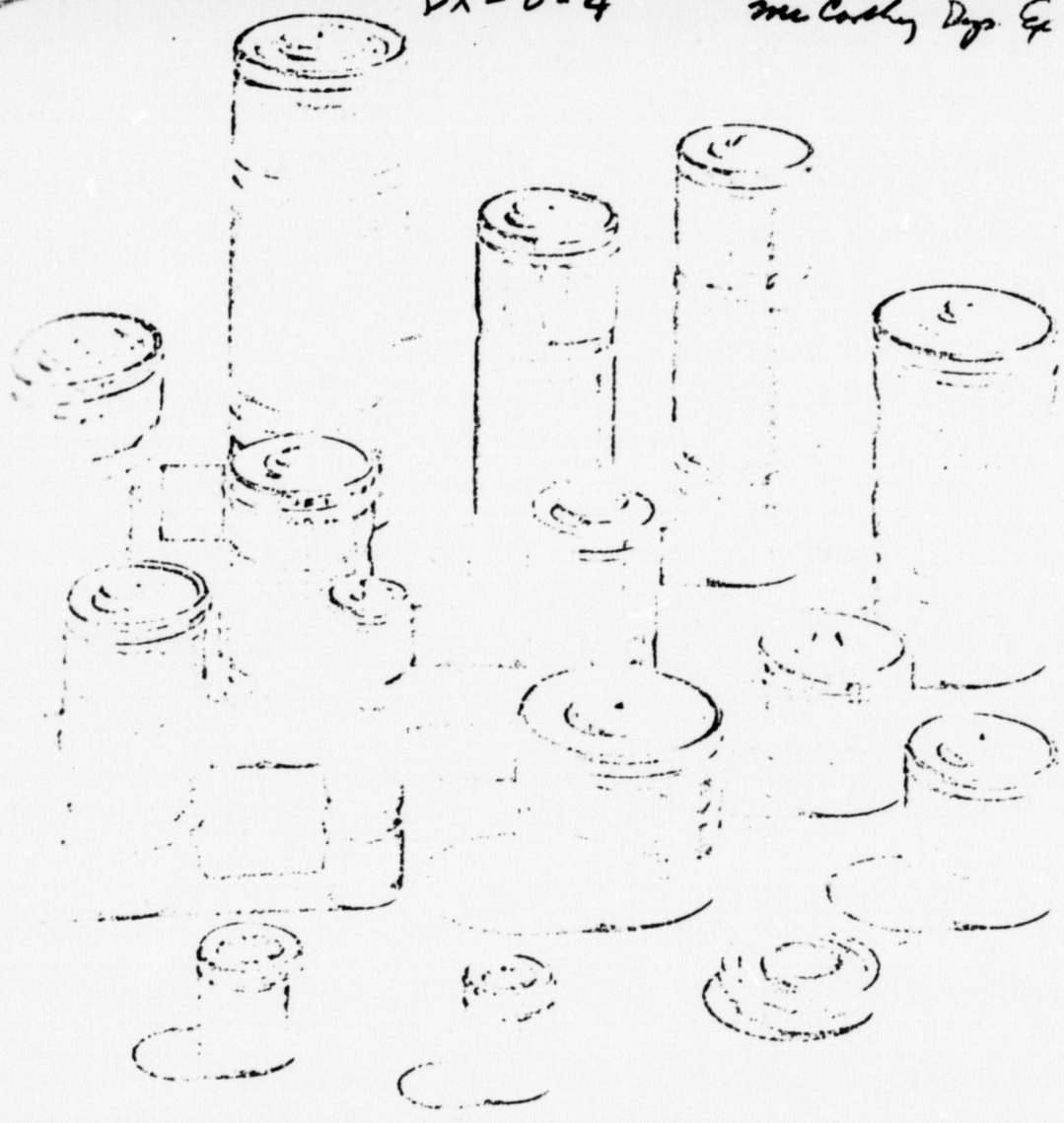
2480 Post Road
Fairfield, Conn. 06430

CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing Plaintiff-Appellant's Petition for Rehearing has been mailed, post paid to Defendants' counsels of record, namely, Edward F. Kunin, Esq. 285 Golden Hill Street, Bridgeport, Connecticut and Ernest Junkins, Esq., 855 Main Street, Bridgeport, Connecticut, on this 8th day of September, 1975.

Arthur T. Fattibene
Attorney for Plaintiff-Appellant
2480 Post Road
Fairfield, Connecticut

DX-0-4 McCarthy Dep Ex 4



...cadmium batteries are available in wide range of sizes and shapes. Cells can be combined to supply various power needs.

Cordless Battery Power

...ble power offers many possibilities for new appliances

by Robert J. McCarthy, Assistant Products Manager of the Battery Division, Sonotone Corp.

...able, cordless power ...ality. Products al... the limitations of an ... from toothbrushes ...hes has been made ...ment of miniature, ...ls of the sintered- ... type.

...sing rechargeable nickel-cadmium batteries for portable, cordless power include: food mixers, hedge trimmers, radios, power drills, shavers and toothbrushes. Some other cordless appliances now on the drawing boards are: vacuum cleaners, ice crushers, can openers, rotisseries, heating pads, blenders and sanders.

The sintered-plate type of nickel-cadmium battery can be recharged hundreds of times and discharged at extremely high currents while maintaining a steady voltage. It can be recharged by a simple half-wave transformer rectifier charger. It can be left on the recommended charge rate indefinitely without damaging the battery.

A nickel-cadmium battery is made up of one or more cells connected in series.

CONTINUED

Reprinted from Appliance Manufacturer magazine.

APP-1

Characteristics of nickel-cadium cells

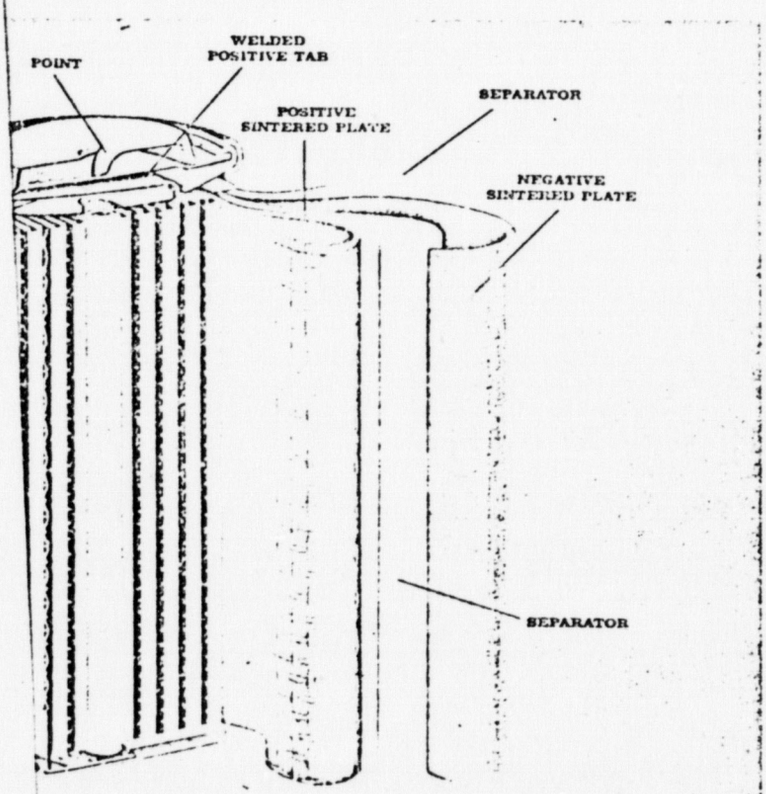
ction details of an individual cell n in Fig. I.

ration of positive and negative equires the sintering of a fine owder to a woven nickel wire his results in a thin, highly porous laque. The plaque is then im- with nickel salt solutions for ve plate and cadmium salt solu- he negative plate. The separator, absorbent cellulosic, similar to ade paper, mechanically separ- positive plate from the negative lso holds an electrolyte, such as ent aqueous solution of potas- oxide, which permits ions, or current, to flow between the

al cell container is a nickel- l can and cover. The cell as- made by rolling a positive and ate, separated by the cellulosic into a tight roll or core. The ced in the can. The negative welded to the bottom of the g the cell case the negative he necessary insulators and ets are inserted into the open The cover, which has been welded to the positive tab, is placed in position. The cell is sealed after electrolyte is added.

The voltage of a sintered-plate, nickel-cadmium sealed cell is generally considered to be 1.25 volts per cell. This will vary slightly, however, depending on whether the measurement is taken on open circuit or under various loads. It is to be noted that the higher rates of drain tend to lower the voltage slightly (Fig II). As shown by the curves, capacity will also vary somewhat, depending on the rate at which you desire to use the stored energy. The slower the energy is used, the more will be available.

Ampere-hour capacity is generally measured to a 1.0 volt-per-cell endpoint and is the product of discharge current and time under load. In many cases, a higher endpoint can be used because most of the capacity in the sintered-plate cell is exhausted at a higher voltage level, usually about 1.15 volts. As shown in Fig. III, the cells hold a plateau voltage of about 1.2 volts per cell, then drop rather sharply near the end of discharge. This type of discharge differs radically from the standard dry cell where cell



AY of a battery cell. Plates arator are rolled into a tight l in jacket. The negative plate tab is welded to bottom of jacket and cover, right, to the positive tab. The cell is sealed after the electrolyte has been added.

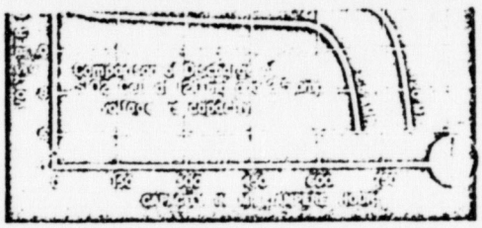


FIGURE II.

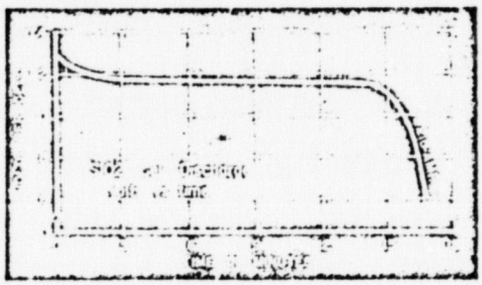


FIGURE III.

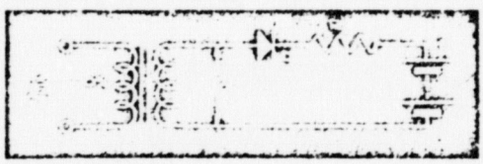


FIGURE IV.

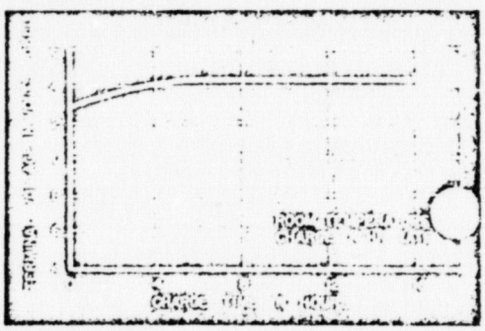


FIGURE V.

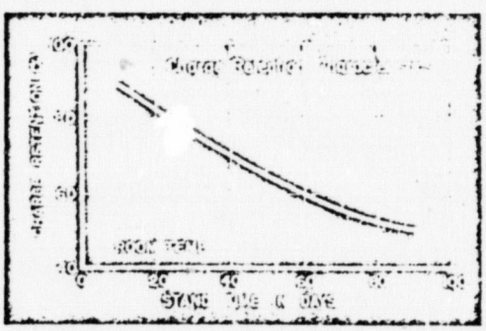
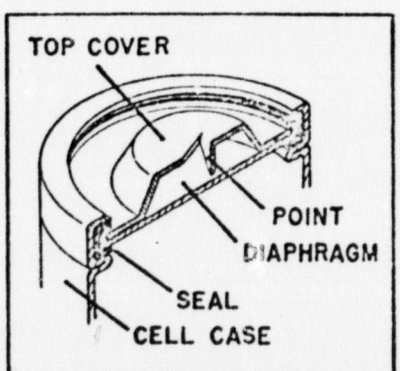


FIGURE VI.



...est in a straight line

...d be charged at a 14
...der constant current
...c or rectified ac may
...rent should not exceed
... recommendation. A
...cuit is shown in Fig.
...pply voltage is:
$E_s = 3n$ volts

...ry voltage of trans-
... (RMS supply voltage)
... of cells in series
... higher than this mini-
...e used if this is con-
...e consequent increase in
... not objectionable. The
... resistance (R) should
...t the charging current
...mended by the manu-
...king the resistor adjust-
..., voltage should be held
...minal ac value. During
...ove rate, a sealed, sin-
... cadmium cell will have
...s shown in Fig. V. The
... shortly after a cell is
...t current charge, it has
... volts. This voltage can
... 45 volts per cell, and,
...tly higher. The average
...olts. Too low a voltage
...mplete charging. Too
...y indicate too high a
...nce has indicated that
...plate, nickel-cadmium
...n charge at a 14-hr
...r continuously.
...mical storage devices,
...admium cell loses a
...arge while in storage.
...s is dependent upon
...e temperature; the
...mperature, the faster
...harge. Lower storage
...ecrease this capacity

...battery held together
... film. Package is 2 x 3
...t 1½ x 1½ x 2½ in.

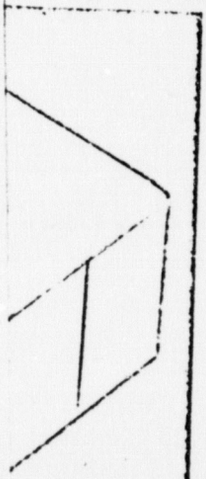
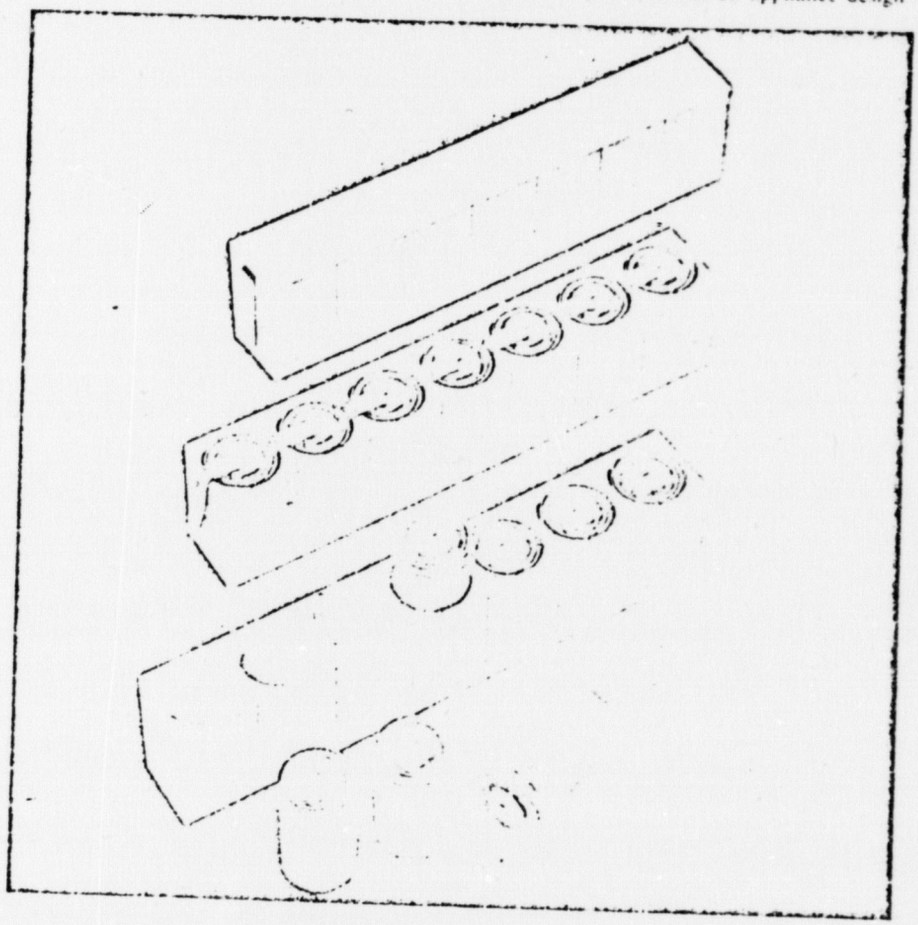


FIG. VIII. CELLS can be assembled various ways to meet the specific configuration and power requirements of an appliance design

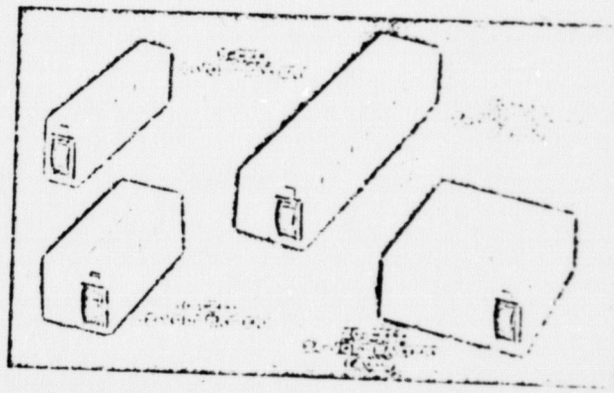


loss. At room temperature, the cell will retain 75 percent of its capacity after a 30-day stand and 50 percent of its capacity after 90 days (Fig. VI). In either case, the loss of charge is of a temporary nature and can be regained on subsequent charging. This is one of the advantages of a rechargeable system over the ordinary dry cell. Loss of shelf life can be prevented by retaining the cells on constant charge of the type described earlier.

It is difficult to be specific about the cycle life of a nickel-cadmium battery because of the varied applications and environmental conditions. We speak of life in terms of hundreds and thousands of cycles. A sealed nickel-cadmium battery will generally outlive the item it is used in.

Batteries consist of one or more cells connected in series. In most cases, nickel-cadmium cells used individually may require an insulating sleeve. However, they do not require any special packaging.

When two or more cells are connected in series to form a battery, packaging becomes a consideration. Packaging can be an integral part of the appliance where the configuration necessary to hold the required number of individual cells is



fabricated into the appliance housing. In this case, connecting cells in series would be done at the same time as the appliance is assembled.

Economics would be a consideration because separate cells cost less than an assembled battery. On the other hand, the battery supplier is more qualified to assemble a battery and has the necessary equipment for a low cost, high quality job.

Battery manufacturers offer many types of packaging. These range from a stainless steel can, with potted in cells, to an inexpensive assembly in which cells are

CONTINUED

APP-1

; can be grouped
tisfy power need

er with shrinkable plastic film. I and VII show the construction ne type of battery package and configurations possible.

battery combinations can be pply any given power require- specific minimum job must be n generally be stated in terms watts of power for a certain time. Batteries that might be tisfy various wattages for 10, min are tabulated in Fig. IX. ments in the cordless power pected from a number of areas. nufacturers are constantly striv- prove batteries. A battery of ity will allow more work to be the same size package. It will use of a smaller, lighter battery me job. The greatest improve- rdless power seems to come ning items that use the elec- y more efficiently.

past, little thought had to be e efficient use of energy. An ble cheap source was available very home, shop, office, garage in the form of an electrical dless power, on the other hand, er efficiency paramount. The e of power allows the use of d lighter batteries or allows ing time. Designing with power as a main consideration will me cases, the same job to be ne-third, or even one-fourth, previously required.

to Increase Charge Rate

area where improvement may ning is in the rechargeability nickel-cadmium cells. Battery ers, as well as others, are making efforts to increase the e rate from the present 14- e 7, 4 and even 1 hour rate. ance of such a breakthrough ly will reflect itself in the use and lighter batteries.

rdless items under develop- conceived many years ago but ractical at the time because ailable would not function under high current drains. nickel-cadmium battery seems olution to the power require- result, many ideas and designs ined by reviewing old com- designs and patents. With a ou may discover the next item industry.

ting!

Typical sealed nickel-cadmium cells available are covered in the following list:

MODEL	SIZE	NOMINAL CAPACITY IN MAH	CHARGE RATE IN MA	DIMENSIONS (in inches) DIAMETER ±.010	DIMENSIONS (in inches) HEIGHT ±.015	WEIGHT IN OUNCES
S-101*	AA	510	50	.580	1.985	0.8
S-102	½C	810	80	1.022	.920	1.2
S-103*	D	4000	400	1.333	2.385	[illegible]
S-104*	C	1900	190	1.022	1.925	2.6
S-105^	Disc	140	15	1.000	.250	0.4
S-106^*	CD	3000	300	1.000	3.060	4.0
S-108	F	5600	560	1.333	3.455	8.3
S-113^	⅜ x 1⅜	1400	140	.865	1.650	1.8
S-114^	½C	440	44	1.000	590	.78
S-115^	1¼ x .7	800	80	1.242	.700	1.4
S-116^	½AA	130	15	.560	.615	.25
S-121^	1¼ x 1	1400	140	1.242	1.045	2.5
S-126^	625 x .6	170	20	.630	.620	0.4

^ Without label and jacket. * With Positive contact button.

FIGURE IX.

Suggested Battery Configurations*

Number and Type of Sonotone Cells Needed

Wattage	40-Minutes of Operation Required
1	1—S-102
2	1—S-113; 2—S-102
5	4—S-102; 3—S-113; 1—S-103
10	1—S-108; 8—S-102; 5—S-113; 2—S-103; 3—S-104
25	3—S-108; 8—S-104; 4—S-103
50	5—S-108; 8—S-103
100	10—S-108

Wattage	20-Minute Operation
1	1—S-102
2	1—S-102
5	1—S-113
10	1—S-103; 2—S-104; 3—S-113
25	8—S-113; 5—S-104
50	3—S-108; 10—S-104; 5—S-103
100	5—S-108; 10—S-103

Wattage	10-Minute Operation
1	1—S-102
2	1—S-102
5	1—S-113
10	1—S-104; 2—S-113; 3—S-102
25	[illegible]-113; 3—S-104
[illegible]	8—S-113; 5—S-104
100	10—S-104; 5—S-103; 3—S-108

*A typical battery nomenclature would be 4—S-104, indicating four S-104 cells connected in series.

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240

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APP-1

realized that this was too expensive to do this with rechargeable batteries, and we had to have fewer cells. So, this meant we had to change the elements inside the socks. There were other problems, such as we didn't like the quality of the socks either. But they weren't hang-ups, they were just, the question was just, how to get this element and just get it as cheap as possible, and make it as right as can be from a good engineering point of view. So, these were the problems that we were discussing."

"Q Now, Stanley in his letter to you, Exhibit A, also indicates that you were stuck because you couldn't get a low enough resistance out of the wire."

"A My notation on there says: "Not so" on that. But on further reflection, this is a very good possibility, because my problem at the time was to get a low resistance. And I didn't want too big a diameter on the wire that you would feel through the sole of the sock. So, I did have a problem getting down to the resistance I wanted. I had to get to a lower resistance."

"Q Now, at that time, did you ever succeed in getting a lower resistance?"

"A Yes, we did."

"Q And when did this occur?"

"A Oh, this has to be a wild guess on my part. When did it happen? This happened in March of '65."

"Q And you describe to me how you got the lower resistance?"

"A The engineering department got involved and obtained a wire with a thinner insulation on it. See, most wires are made for 250 volts on up. We were dealing with 2 and 1/2 volts. We didn't need such heavy insulation. They obtained a wire with very fine insulation and brought the diameter of the whole wire down."

"Q This was still a round wire."

"A Yes."

MR. FATTIBENE: Next page, 13:

"Q Wrapped into a insulated, so-called insulated, cover."

"A That's right. It still was not the ultimate as we saw the ultimate, but it did suffice for the field test that we wanted to run."

"Q Now, did you ever make an actual electric sock according to the ideas that you were trying to foster in your company?"

"A Everything except the fine element. We actually put out somewhere between 20 to 24 model units to be tested in the field more or less as a technical test. How did they work, and so on. We distributed them around for no charge to certain people."

"Q And when did this occur?"

"A We got some out in March of that year. But actually the real movement happened at the later part of '65, because by March we had lost our winter around here, and the only place we could pick a little bit up was one set I sent to Canada. The rest of them had to wait until the Fall of '65."

MR. FATTIBENE: Page 14:

"Q Did Sonotone ever go into the business of making them?"

"A No, they did not."

"Q You mentioned a battery pack. Can you describe the battery pack?"

"A That we were trying to use?"

"Q Yes."

"A We wanted to get down to where we would use two F cells of nickel-cadmium. The idea was that we wanted to give two levels of heat. We recognized that the level of heat that would keep the feet warm would not actually warm the feet if you allow them to become cold first. In other words, what I am trying to depict is a person, a cop on the beat, doesn't plug his battery in until his feet are cold. Well, we realized to give him a proper amount of heat, it wouldn't work unless we could give him temporarily a lot of higher heat. So, we worked out a little switch on our battery that, if you held it by your hand, you could put the

"Q In other words, the battery pack was on the belt?"

"A Yes."

"Q How many volts was that?"

"A Well, as I said, in one position it would be 2 and 1/2 volts and the other position it would be 1 and 1/4."

"Q 1 and 1/4?"

"A Yes."

MR. KUNIN: Now, on page 16, the question that was read was:

"Q Did Stanley show you any samples or models of anything he had with him?"

"A Yes. As I say, we had already seen the belts. He showed me the element used in the belts. He showed me the element used in the stove and some other element they had, which was very intriguing in that it pushed the conversation along. We saw lots of possibilities. We could see what he was doing with elements."

"Q Now, did Stanley indicate to you where he got these elements from?"

"A Well, at this time he was there with Mr. Costanzo, so they were both talking. I don't know who was saying what at the time."

MR. KUNIN: Now, page 17 --

THE COURT: 17?

MR. KUNIN: No, not 17. Page 22. Now, the

APP-5